

Case 2198

READER OR TRANSMITTER AND/OR RECEIVERCOMPRISING A SHROUDED ANTENNA

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The present invention concerns a reader or a transmitter and/or a receiver fitted with a shielded antenna. In particular, the invention concerns a device of this type provided for communicating with transponders placed inside a communication volume defined by the antenna, particularly by the geometrical dimensions thereof. By way of example, the communication volume is provided inside a cylinder or a parallelepiped rectangle around which the antenna is arranged.

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In order to shield the antenna, particularly so that it does not disturb its environment, those skilled in the art know, in accordance with Figure 1, to arrange a central coil 2 defining inside its turns 4 a communication volume 6 and, on either side of said coil 2, two shielding coils 8 and 9. In order not to decrease the communication volume of the antenna, coils 8 and 9 are arranged at a certain distance from coil 2. In fact, in order to cancel out the magnetic field outside the antenna, coils 8 and 9 are powered with a phase shift of 180° relative to the central communication coil. As appears in the lower graph of Figure 1, a sharp decrease in the field amplitude of the shielded antenna occurs between the three regions dominated by the three respective fields of the three coils concerned. These magnetic field amplitude decrease regions 11 and 12 thus result from the aforementioned 180° phase shift for powering the shielding coils. It will be noted that, in regions 11 and 12, the magnetic field decrease is relatively large, such that communication between the reader or transmitter and/or receiver and transponders cannot be guaranteed in these regions. Consequently, the active zone ZA of the sheathed antenna shown in Figure 1 is limited to inside the geometrical dimensions of coil 2. This constitutes a major drawback for such a device.

In fact, the sheathed antenna of the prior art according to Figure 1 has a useful communication volume of relatively small length ZA in relation to the total length L of the shielded antenna.

It is an object of the present invention to overcome the aforementioned major drawback by proposing a reader or transmitter and/or receiver with a sheathed antenna whose useful communication zone substantially corresponds to the total length of the shielded antenna.

The invention therefore concerns a reader or transmitter and/or receiver for communication with transponders whose antenna is formed of several turns defining a central axis and an overall internal volume, characterized in that the antenna includes a first group of turns forming at least one first coil and a second group of turns forming